IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Appellant:	PUNAGANTI VENKATA et al.	Examiner:	Liu, L.
Serial No.:	10/700,365	Group Art Unit:	2145
Filed:	November 3, 2003	Docket No.:	NOKM.065PA

Title: SYSTEM AND METHOD FOR PROVIDING A UNIFIED FRAMEWORK FOR SERVICE DISCOVERY

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this Transmittal Letter and the papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 3, 2008.

By: _____
Rennae Johnson

APPEAL BRIEF

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Sir:

This Appeal Brief is submitted pursuant to 37 C.F.R. § 41.37 for the above-referenced patent application consistent with the Notice of Appeal filed on June 19, 2008 and received by the U.S. Patent Office on June 23, 2008.

Please charge deposit account 50-3581 (NOKM.065PA) in the amount of $510.00 for filing this brief in support of an appeal as set forth in 37 C.F.R. § 41.20(b)(2). If necessary, authority is given to charge/credit deposit account 50-3581 (NOKM.065PA) additional fees/overages in support of this filing.

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee, Nokia Corporation.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals, interferences or judicial proceedings that would have a bearing on the Board's decision in the instant appeal.

III. STATUS OF CLAIMS

Claims 1-24 are pending, each of which is presented for appeal. Each of the pending Claims 1-24 has been finally rejected by the Examiner's action dated March 21, 2008, from which Appellant appeals. The pending Claims 1-24 under appeal may be found in the attached Claims Appendix.

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IV. STATUS OF AMENDMENTS

No amendments to Claims 1-24 have been presented subsequent to the Final Rejection dated March 21, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is generally directed to providing uniform service discovery through the use of a plurality of service discovery protocols. One embodiment of the present invention is directed to a method. See, *e.g.*, Claim 1, Figs. 2, 4, 6; and the corresponding discussion in the instant Specification at page 6, lines 7-17; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; and page 20, lines 6-24. The method involves generating (*e.g.*, 606, 618) service discovery queries (*e.g.*, 406) from a user interface (*e.g.*, 404). The service discovery queries are translated (*e.g.*, 408) into formats required by each of a plurality of service discovery protocols (*e.g.*, 218, 220, 230, 232, 416, 424). The plurality of service discovery protocols include a local service discovery protocol (*e.g.*, 218, 220, 416) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232, 424) operating via an Internet host (*e.g.*, 222, 418). Results (*e.g.*, 426) indicative of services found from each of the plurality of service discovery protocols are received (*e.g.*, 624) in response to the service discovery queries. The results are translated (*e.g.*, 408, 506, 626) into a uniform format for display (*e.g.*, 628) on the user interface, wherein the uniform format is independent of the vocabularies and behaviors of the plurality of service discovery protocols (*e.g.*, p. 6, lines 9-12).

Another embodiment of the present invention is directed to a service discovery system. See, *e.g.*, Claim 8, Figs. 1, 2, and 4; and the corresponding discussion in the instant Specification at page 6, lines 7-23; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; and page 20, lines 6-24. The system (*e.g.*, 100) includes a first service discovery agent (*e.g.*, 208, 212) coupled to receive service discovery queries (*e.g.*, 406) in a user format and coupled to transform (*e.g.*, 408) the user formatted service discovery queries into a plurality of formats each dependent upon a plurality of respective service discovery protocols (*e.g.*, 218, 220, 230, 232, 416, 424). The plurality of service discovery protocols include a local service discovery protocol (*e.g.*,

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218, 220, 416) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232, 424) operating via an Internet host (*e.g.*, 222, 418).

The system includes a second service discovery agent (*e.g.*, 222, 224) coupled to receive service discovery queries from the first service discovery agent and in response, to provide service discovery responses (*e.g.*, 426) to the first service discovery agent. The second service discovery agent is coupled to access services (*e.g.*, 106) discovered by the first service discovery agent

Another embodiment of the present invention is directed to a network host. See, *e.g.*, Claim 15, Figs. 1, 2, and 4; and the corresponding discussion in the instant Specification at page 6, lines 7-23; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; and page 20, lines 6-24. The network host (*e.g.*, 206) includes means (*e.g.*, 212) for receiving service discovery queries (*e.g.*, 406) from a service discovery agent (*e.g.*, 208). The network host includes means (*e.g.*, 214, 216) for discovering services (*e.g.*, 218, 220, 230, 232) within a domain of the network host in response to the service discovery queries. The domain of the network host includes a local service discovery protocol (*e.g.*, 218, 220) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232) operating via an Internet host (*e.g.*, 222).

The network host includes means (*e.g.*, 408) for providing information (*e.g.*, 426) describing the services discovered within the domain of the network host to the service discovery agent. The information is provided in a uniform format that is independent of the vocabularies and behaviors of the local and remote service discovery protocols (*e.g.*, p. 6, lines 9-12). The network host includes means (*e.g.*, 412, 414) for accessing services within a domain of the service discovery agent.

Another embodiment of the present invention is directed to a computer-readable medium. See, *e.g.*, Claim 17, Figs. 2, 4, and 7; and the corresponding discussion in the instant Specification at page 6, lines 7-17; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; page 20, lines 6-24; and page 22, lines 29-31. The computer-readable medium (*e.g.*, 704) has instructions which are

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executable by a network host processing system (*e.g.*, 700) for facilitating service discovery by performing steps that include receiving service discovery queries (*e.g.*, 406) from a service discovery agent (*e.g.*, 208). The steps further include discovering services (*e.g.*, 218, 220, 230, 232) within a domain of the network host in response to the service discovery queries The domain of the network host includes a local service discovery protocol (*e.g.*, 218, 220) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232) operating via an Internet host (*e.g.*, 222). The steps further include providing results (*e.g.*, 426) of the services discovered within the domain of the network host to the service discovery agent. The results are provided in a uniform format that is independent of the vocabularies and behaviors of the local and remote service discovery protocols (*e.g.*, p. 6, lines 9-12). Services (*e.g.*, 416) are then accessed services within a domain of the service discovery agent.

Another embodiment of the present invention is directed to a mobile terminal. See, *e.g.*, Claim 19, Figs. 2, 4, and 7; and the corresponding discussion in the instant Specification at page 6, lines 7-23; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; and page 20, lines 6-24. The mobile terminal (*e.g.*, 700) includes a network interface (*e.g.*, 718) capable of wirelessly coupling the mobile terminal to a network having a service discovery engine (*e.g.*, 212, 224, 420). The terminal includes a memory (*e.g.*, 704) capable of storing a service discovery agent (*e.g.*, 208, 726) coupled to locate services (*e.g.*, 412, 414) having a plurality of service description protocols (*e.g.*, 218, 220, 230, 232, 416, 424) in response to received user queries (*e.g.*, 406) having a user format. The plurality of service discovery protocols include a local service discovery protocol (*e.g.*, 218, 220, 416) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232, 424) operating via an Internet host (*e.g.*, 222, 418).

The mobile terminal includes a processor (*e.g.*, 702) that is coupled to the memory and configured by the service discovery agent to enable service discovery query exchange with the service discovery engine. A transceiver (*e.g.*, 718) is configured to facilitate the service discovery query exchange with the service discovery engine. The transceiver further

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facilitates access to the services having a plurality of service description protocols by the service discovery engine. A user interface (e.g, 404, 706) of the terminal configured to present information (*e.g.*, 426) describing the services that is received in response to the service discovery query exchange. The information is presented in a uniform format that is independent of the vocabularies and behaviors of the plurality of service discovery protocols (*e.g.*, p. 6, lines 9-12).

Another embodiment of the present invention is directed to a computer-readable medium. See, *e.g.*, Claim 23, Figs. 2, 4, and 7; and the corresponding discussion in the instant Specification at page 6, lines 7-17; page 10, lines 1-14; page 14, lines 15-27; page 15, line 29 to page 16 line 4; page 18, line 28 to page 19, line 11; page 20, lines 6-24; and page 22, lines 29-31. The computer-readable medium (*e.g.*, 704) has instructions which are executable by a mobile terminal processing system (*e.g.*, 700) for facilitating service discovery by performing steps that include receiving service discovery queries (*e.g.*, 406) in a user format. The user formatted service discovery queries are transformed (*e.g.*, 408) into a plurality of formats relating to a plurality of service discovery protocols (*e.g.*, 218, 220, 230, 232, 416, 424). The plurality of service discovery protocols include a local service discovery protocol (*e.g.*, 218, 220, 416) operating via a local network and a remote service discovery protocol (*e.g.*, 230, 232, 424) operating via an Internet host (*e.g.*, 222, 418). Service discovery results (*e.g.*, 426) are received in a plurality of service discovery protocols (*e.g.*, 218, 220, 230, 232, 416, 424) in response to the service discovery queries. The service discovery results are transformed (*e.g.*, 408) into a uniform format that is independent of the vocabularies and behaviors of the plurality of service discovery protocols (*e.g.*, p. 6, lines 9-12).

As required by 37 C.F.R. § 41.37(c)(1)(v), a concise explanation of the subject matter defined in each of the independent claims involved in the appeal is provided herein. Appellant notes that representative subject matter is identified for each of these claims; however, the abundance of supporting subject matter in the application prohibits identifying all textual and diagrammatic references to each claimed recitation. Appellant thus submits that other application subject matter, which supports the claims but is not specifically

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identified above, may be found elsewhere in the application. Appellant further notes that this summary does not provide an exhaustive or exclusive view of the present subject matter, and Appellant refers to the appended claims and their legal equivalents for a complete statement of the invention.

V. Grounds Of Rejection To Be Reviewed On Appeal

A. Claims 8-14 are rejected based on 35 U.S.C. §101 as being directed to non-statutory subject matter.

B. Claims 15-18 are rejected based on 35 U.S.C. §102(e) as being anticipated by Tsai *et al.* (U.S. Publication No. 2005/0078644).

C. Claims 1-14 and 19-24 are rejected based on 35 U.S.C. §103(a) as being unpatentable over Tsai *et al* in view of Monroe (U.S. Patent No. 6,130,917)

VII. ARGUMENT

Appellant maintains the traversal of each of the grounds of rejection, which are asserted under 35 U.S.C. §§ 101, 102 and 103. In accordance with 37 C.F.R. § 41.37(c)(1)(vii) each of the grounds of rejection are discussed in detail below.

A. The rejection of Claims 8-14 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

1. The rejection of Claims 8-14 should be reversed because Claims 8-14 are directed to a system, which has long been accepted as belonging to at least one of the four statutory categories of 35 U.S.C. § 101.

Claim 8 is an independent claim directed to a service discovery system. Dependent Claims 9-14 are also directed to service discovery systems, and all of Claims 9-14 ultimately depend from Claim 8. On page 2, paragraph 5 of the Office Action, the Examiner states that the service discovery agents described in Claim 8 "are simply application software (specification, page 13, lines 1-24) not yet being stored into a computer readable storage medium." and that a claim "directed towards software alone is per se nonstatutory." Appellants submit that the rejection is improper, being based on both factual and legal errors.

First, the Examiner's statement that "[c]laims directed towards software alone is per se nonstatutory" is an oversimplification of the law, at least because the term "software alone" has no meaning in this context. The only "*per se* non-statutory" rules in the MPEP are directed to descriptive material that is "claimed as descriptive material" (*e.g.*, claimed as computer listings *per se*) instead of being claimed as recorded on computer readable medium. MPEP § 2106.01 "In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035." *Id.*

Thus, to maintain the rejection of Claim 8-14 on this basis, the Examiner must present evidence that the structural and functional interrelationships in Claims 8-14 can be

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reasonably interpreted to be implemented solely using computer programs that are claimed as descriptive material. Claims 8-14 are neither claimed as data structures, nor as descriptive material. Claims 8-14 are directed to systems having service discovery agents that, among other things, receive service discovery queries and provide service discovery responses. It is unreasonable to assert that descriptive material by itself performs these or any other functions, nor was any evidence presented to prove such an assertion.

Contrary to the Examiner's assertions, the Specification provides abundant evidence that Claims 8-14 are intended to encompass statutory subject matter; e.g., "those skilled in the art will be readily able to combine software created as described with appropriate general purpose or special purpose computer hardware to create a service discovery system and method in accordance with the present invention;" "systems for providing service discovery functions in connection with the present invention may be any type of computing device capable of processing and communicating digital information." (Specification at page 23, lines 8-14).

Systems such as set forth in Claims 8-14 have long been accepted as belonging to at least one of the four statutory categories set forth in 35 U.S.C. § 101. "The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to -- process, machine, manufacture, or composition of matter -- [provided the subject matter falls into at least one category of statutory subject matter] but rather on the essential characteristics of the subject matter, in particular, its practical utility." MPEP § 2106 IV B. Claims 8-14 are directed to systems that exhibit practical utility (e.g., receive service discovery queries, transform queries) relating to computerized service discovery, and thus the claims satisfy the requisites for statutory subject matter set forth in the MPEP.

Finally, even if the Examiner could demonstrate that some aspect of the rejected claims could be construed as incorporating non-statutory subject matter (a contention with which Appellants strongly disagree), this does not allow the Examiner to reject the claims themselves as non-statutory as long as the claims are directed to a statutory class of invention. "A process, machine, manufacture, or composition of matter employing a law of

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nature, natural phenomenon, or abstract idea is patentable subject matter even though a law of nature, natural phenomenon, or abstract idea would not, by itself, be entitled to such protection." *State Street Bank & Trust v. Signature Financial Group, Inc.*, 149 F.3d at 1374, 47, USPQ2d at 1601. While Appellants have made no assumptions about what aspects of Claims 8-14 that the Examiner may consider non-statutory, such considerations are immaterial because the claims themselves are directed to one or more of a process, machine, manufacture, or composition of matter, and therefore are directed to patentable subject matter.

For at least the reasons above, Appellants submit that the rejection of Claims 8-14 is based on clear error of both fact and law, and reversal of the rejection is respectfully requested.

B. The rejection of Claims 15-18 under 35 U.S.C. §102(e) as being anticipated by Tsai *et al.*

1. The rejection of independent Claims 15-18 should be reversed because Tsai *et al* fails to expressly or inherently show at least facilitating service discovery for both local and remote service discovery protocols.

Independent Claims 15 and 17 are first considered. Claims 15 and 17 both set forth that a plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host. Appellants maintain that Tsai fails to expressly or inherently disclose facilitating service discovery for both local and remote service discovery protocols.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP § 2131, quoting *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Tsai is directed to "a wireless client device 22" that can "apprise a user of the services that are available in the network 10" as advertised by a "service discovery server 14." (Tsai, 0011). Examples of these network services include "facsimile services...printer services... Internet access services...copy services, commercial ad broadcasting services ... location-based services... internal enterprise information technology (IT) services, FYI

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faster roaming" etc. (Tsai, 0010). In particular the service discovery server 14 of Tsai "is operative for discovering services that are available within the network 10" and may implement local service discovery such as "universal plug and play (UPnP)... service location protocol (SLP) ... [and] proprietary service discovery protocols and applications." (Tsai, 0010).

As should be apparent at least from the above excerpts, Tsai is directed only to service discovery within the local network 10, and Tsai neither inherently nor expressly describes an element that can utilize both a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host. In the Office Action at page 3, the Examiner notes that Tsai (at page 1, paragraph 0010) describes the network including an Internet access server 16, and the Examiner cites this Internet access server as showing "a remote service protocol operating via an Internet host." This is an unreasonable interpretation of the teachings of Tsai, both in view of the cited portion of Tsai, and in view of the reference as a whole.

Tsai only describes service discovery occurring on the local network. For example, "[t]he service discovery server 14 is operative for discovering services that are available within the network 10," (Tsai, 00010)(emphasis added); "[i]nformation is first received from one or more service discovery servers within the network that describes services that are available within the network." (Tsai, 0024) (emphasis added). Although Tsai describes discovery of "Internet access" at 0010, this paragraph clearly describes Internet access as a local service made available via local service discovery server 14 using local service discovery protocols (e.g., UPnP, SLP), or via peer-to-peer UPnP. Nowhere does Tsai teach that an Internet host operates a remote service protocol that is discovered by a host on a local network. For at least this reason, *prima facie* anticipation has not been established. Tsai fails to anticipate independent Claims 15 and 17, and reversal of the rejection of independent Claims 15 and 17 is therefore respectfully solicited.

Claims 16 and 18 depend respectively from Claims 15 and 17 and were rejected as being anticipated by Tsai. As argued above, the rejection of Claims 15 and 17 is improper.

Thus, without acquiescing to the grounds of the rejections or the reasons therefor, the rejection of Claims 16 and 18 is also improper. Claims 16 and 18 include all of the respective limitations of Claims 15 and 17, and recite additional features which further distinguish these claims from Tsai. Reversal of the rejection of dependent Claims 16 and 18 is also respectfully solicited.

C. The rejection of Claims 1-14 and 19-24 based on 35 U.S.C. §103(a) as being unpatentable over Tsai *et al* in view of Monroe.

1. The rejection of Claims 1-8, 10-14, 19, and 21-24 is improper because the combination of Tsai *et al* and Monroe fails to teach or suggest all of the claim limitations.

The rejections of independent Claims 1, 8, 19, and 23 are first considered. Appellants maintain that both Tsai and Monroe have failings, both when considered individually and in combination, in view of these independent claims. The combination of Tsai and Monroe fails to teach or suggest all of the claim limitations, nor has the Examiner set forth any rationale why claim limitations not taught by the combination of references would nonetheless be obvious to one of ordinary skill in the art. Therefore, a *prima facie* case of obvious has not been established.

First, the application of Tsai to independent Claims 1, 8, 19, and 23 is discussed. These claims set forth that a plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host. In the Office Action (*e.g.*, Office Action p. 5, lines 3-5), Tsai was relied upon to teach these features of Claims 1, 8, 19, and 23. As discussed above regarding the rejection of Claims 15-18, Tsai fails to teach or suggest a service discovery entity that can utilize both a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host. Monroe was not relied upon to remedy the deficiencies of Tsai, nor does Monroe provide such a remedy. For at least this reason, Claims 1, 8, 19, and 23 are not rendered obvious by the combination of Tsai and Monroe, at least because the combination fails to teach or suggest all the limitations of these claims, nor has the Examiner set forth any rationale why claim

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limitations not taught by the combination of references would nonetheless be obvious to one of ordinary skill in the art.

The rejections also rely on Monroe to teach, for example, "a method of translating the service discovery queries into formats required by a plurality of service discovery protocols (Monroe, col. 2, lines 44-63)." (Office Action, p. 5). However, Appellant maintains that Monroe fails to expressly or inherently describe translating between different service discovery protocols, nor does more teach or suggest a service discovery query.

Monroe is directed to a "protocol scheme [where] destination or receiving station is identified by a source or sending station in order to permit automatic reformatting of the source data into a compatible format and protocol scheme before transmission is initiated." (Monroe, Abstract). The system described in Monroe facilitates "transmission of file source data to a destination system where the source data is incompatible with the source, where the operator may intervene to select the conversion parameter." (Monroe, col. 4, lines 32-36). These transmissions may be made via "LAN, WAN, telephone line or other distributive network system." (Monroe, col. 4, lines 54-55). However, Monroe does not inherently or expressly describe a network that uses "service discovery," as the term is known and used in the art. As a result, Monroe fails to teach or suggest conversion between service discovery protocols.

As the term is generally used in the art, "service discovery" relates to automatically discovering services, including their properties, in a dynamic fashion. (*e.g.*, Specification, p. 2, lines 7-8). In the rejection of Claims 1, 8, 19, and 23, the Office Action cites col. 2, lines 44-63 of Monroe to show translating the service discovery queries into formats required by a plurality of service discovery protocols. This portion of Monroe only describes "transmitting source data generated at a source system formatted with a source format to a remote destination system which may require a different, incompatible data format" and performing "protocol matching." Elsewhere in the disclosure, Monroe describes matching "the protocol and the data format used by both the transmitting station and the receiving station." (Monroe, col. 1, lines 56-57). It is clear from the concepts and examples that these protocols are data transmission protocols, and not service discovery protocols; *e.g.*, "Group

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III fax," (Monroe, col. 1, lines 60-65); protocols using parameters such as "synchronous or asynchronous, start-stop sequencing, sync patterns, telephone number(s), I/O address router information, passwords where applicable, and the like." (Monroe, col. 6, lines 5-8).

Thus, Monroe's description of converting between protocols does not teach or suggest translating between different service discovery protocols. Further, Monroe fails to describe the use of service discovery at any stage when communicating and converting the source data, in particular failing to teach or suggest a service discovery query. Monroe describes the use of a single "universal" station to perform conversions for any of "a variety of sending and receiving units." (Monroe, col. 4, lines 63-65), but fails to expressly describe the use of service discovery to locate services of the universal station or the sending/receiving stations. For example, Monroe is silent regarding any automatic configuration of sending/receiving units that allow the units to discover services of the universal station, or properties of these services.

As recognized in the Office Action (*e.g.*, Office Action, p. 5, lines 16-17) Tsai does not teach or suggest translating service discovery queries into formats required by a plurality of service discovery protocols. Tsai states that a "service abstraction unit may provide interfaces to service descriptor plug-ins to register and send service information to the unit," "collect various devices and services in the network," and "send this service information to wireless stations" (Tsai, 0016). Thus Tsai recognizes collecting and sending service information to wireless stations via the service abstraction unit, but fails to teach or suggest service discovery queries that flow the other way, *e.g.*, from the wireless stations to devices and services in the network. As a result, the combination of Tsai and Monroe fails to teach or suggest translating service discovery queries into formats required by a plurality of service discovery protocols.

For the above reasons, Appellants assert that there has been a clear error in the rejection of independent Claims 1, 8, 19, and 23, and for this reason, reversal of these rejections is requested. Dependent Claims 2-7 depend from independent Claim 1; dependent Claims 10-14 depend from independent Claim 8; dependent Claims 21 and 22 depend from independent Claim 19; and dependent Claim 24 depends from independent

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Claim 23. "If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious." *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Thus, without acquiescence to particular rejections or the reasons therefor, Appellants submit that the rejection of Claims 2-7, 10-14, 21, 22, and 24 is in error because the rejection of Claims 1, 8, 19, and 23 is in error. Reversal of the rejection of Claims 2-7, 10-14, 21, 22, and 24 is therefore also requested.

> ## 2. The rejection of independent Claims 9 and 20 is improper because the combination of Tsai et al and Monroe fails to teach or suggest all of the claim limitations.

Dependent Claims 9 and 20 were rejected as obvious based on the combination of Tsai and Monroe as applied to independent Claims 8 and 19, respectively. The rejection of Claims 9 and 20 should be reversed at least for the reasons given above regarding Claims 8 and 19 based on *In re Fine*. Further, these dependent claims recite a service configuration tool that, as described for example in Claim 8, is coupled to allow first discovery agent operation independent of second service discovery agent. Tsai (Tsai, Fig. 2 and paragraph 0015) was relied upon to disclose such a service configuration tool. The cited paragraph of Tsai states, in relevant part,

> During operation of the access point 30, the controller 34 may receive service information from one or more service discovery servers within an associated network (through, for example, the wired network interface unit 36) that describes services that are available within the network. The controller 34 may store the service information within the memory 38 and subsequently use the information to generate a services signal for transmission to one or more wireless client devices via wireless transceiver 32. ... In one approach, the services signal is transmitted as part of a beacon signal that is periodically broadcast to all of the wireless client devices within a coverage area of the wireless access point 30. In another approach, the controller 34 may generate and send a services signal to a particular wireless client device in response to a request received from the device. Other techniques may alternatively be used. In other embodiments, the controller 34 may pass any service related information received from a service discovery server directly through to one or more wireless client devices without changing the data format of the services information.

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Thus, Tsai discloses two alternative embodiments: one where the controller 34 receives and stores service information from one or more service discovery servers, and another where the controller 34 passes service related information from a service discovery server directly through to one or more wireless client devices. However, Tsai fails to teach or suggest a service configuration tool that allows the controller to operate according to these two different embodiments. Further, it is not clear, it is not clear that any of the service discovery components (*e.g.*, controller 34 and service discovery servers) are operating independently from each other in either embodiment. For example, in both embodiments service discovery by the wireless client devices is dependent on the service information being sent from the controller 34. Thus for these additional reasons, the rejection of Claims 9 and 20 is in error, and should be reversed.
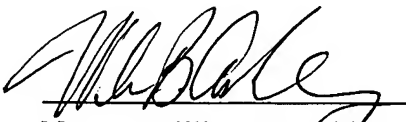
D. Conclusion

In view of the above, Appellant respectfully submits that the claimed invention is patentable over the cited reference and that Claims 1-24 should be allowed. Appellant respectfully requests reversal of the rejections as applied to the appealed claims and allowance of the entire application.

Authorization to charge the undersigned's deposit account is provided on the cover page of this brief.

Respectfully submitted,

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IX. CLAIMS APPENDIX:

1. A method comprising:

generating service discovery queries from a user interface;

translating the service discovery queries into formats required by each of the a plurality of service discovery protocols, wherein the plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host;

receiving results indicative of services found from each of the plurality of service discovery protocols in response to the service discovery queries; and

translating the results into a uniform format for display on the user interface, wherein the uniform format is independent of the vocabularies and behaviors of the plurality of service discovery protocols.

2. The method according to Claim 1, further comprising translating the service discovery queries into a format required by a service discovery engine.

3. The method according to Claim 2, wherein the service discovery engine compiles service discovery results in response to the service discovery queries and provides the service discovery results to the user interface.

4. The method according to Claim 3, wherein the service discovery engine gains access to the plurality of services found.

5. The method according to Claim 4, wherein the service discovery engine provides access to the plurality of services found to a plurality of network entities within a domain of the service discovery engine.

6. The method according to Claim 1, wherein the plurality of service discovery protocols includes Bluetooth service discovery protocol.

7. The method according to Claim 1, wherein the plurality of service discovery protocols includes one or more of Service Location Protocol (SLP), Salutation, Jini, Bluetooth, and Universal Plug and Play (UPnP).

8. A service discovery system, comprising:

a first service discovery agent coupled to receive service discovery queries in a user format and coupled to transform the user formatted service discovery queries into a plurality of formats each dependent upon a plurality of respective service discovery protocols, wherein the plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host; and

a second service discovery agent coupled to receive service discovery queries from the first service discovery agent and in response, to provide service discovery responses to the first service discovery agent, wherein the second service discovery agent is coupled to access services discovered by the first service discovery agent.

9. The service discovery system according to Claim 8, wherein the first service discovery agent comprises a service configuration tool coupled to allow first discovery agent operation independent of second service discovery agent operation.

10. The service discovery system according to Claim 9, wherein the first service discovery agent further comprises a canonical query transform coupled to provide the plurality of transformed formats.

11. The service discovery system according to Claim 10, wherein the canonical query transform is configured with a programmable number of format capabilities.

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12. The service discovery system according to Claim 11, wherein the programmable number of format capabilities is dependent upon a number of plug in modules installed within the canonical query transform.

13. The service discovery system according to 12, wherein the programmable number of format capabilities includes Bluetooth service discovery protocol.

14. The service discovery system according to 12, wherein the programmable number of format capabilities includes one or more of Service Location Protocol (SLP), Salutation, Jini, Bluetooth, and Universal Plug and Play (UPnP).

15. A network host, comprising:

means for receiving service discovery queries from a service discovery agent;

means for discovering services within a domain of the network host in response to the service discovery queries, wherein the domain of the network host includes a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host;

means for providing information describing the services discovered within the domain of the network host to the service discovery agent, wherein the information is provided in a uniform format that is independent of the vocabularies and behaviors of the local and remote service discovery protocols; and

means for accessing services within a domain of the service discovery agent.

16. The network host according to Claim 15, further comprising means for providing access to the services within the domain of the service discovery agent to network entities within the domain of the network host.

17. A computer-readable medium having instructions stored thereon which are executable by a network host processing system for facilitating service discovery by performing steps comprising:

receiving service discovery queries from a service discovery agent;

discovering services within a domain of the network host in response to the service discovery queries, wherein the domain of the network host includes a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host;

providing results of the services discovered within the domain of the network host to the service discovery agent, wherein the results are provided in a uniform format that is independent of the vocabularies and behaviors of the local and remote service discovery protocols; and

accessing services within a domain of the service discovery agent.

18. The computer-readable medium according to Claim 17, further comprising instructions to allow network entities within the domain of the network host to access services within the domain of the service discovery agent.

19. A mobile terminal comprising:

a network interface capable of wirelessly coupling the mobile terminal to a network having a service discovery engine;

a memory capable of storing a service discovery agent coupled to locate services having a plurality of service description protocols in response to received user queries having a user format, wherein the plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host;

a processor coupled to the memory and configured by the service discovery agent to enable service discovery query exchange with the service discovery engine; and

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a transceiver configured to facilitate the service discovery query exchange with the service discovery engine, wherein the transceiver further facilitates access to the services having a plurality of service description protocols by the service discovery engine and

a user interface configured to present information describing the services that is received in response to the service discovery query exchange, wherein the information is presented in a uniform format that is independent of the vocabularies and behaviors of the plurality of service discovery protocols .

20. The mobile terminal according to Claim 19, wherein the service discovery agent comprises a service configuration tool coupled to allow service discovery agent operation independent of the service discovery engine.

21. The mobile terminal according to Claim 20, wherein the service discovery agent further comprises a canonical query transform coupled to translate the user queries into a format required by the plurality of service description protocols.

22. The mobile terminal according to Claim 21, wherein the canonical query transform is further coupled to translate responses from the plurality of service description protocols into the user format.

23. A computer-readable medium having instructions stored thereon which are executable by a mobile terminal processing system for providing service discovery by performing steps comprising:

receiving service discovery queries in a user format;

transforming the user formatted service discovery queries into a plurality of formats relating to a plurality of service discovery protocols, wherein the plurality of service discovery protocols include a local service discovery protocol operating via a local network and a remote service discovery protocol operating via an Internet host;

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receiving service discovery results in a plurality of service discovery protocols in response to the service discovery queries; and

transforming the service discovery results into a uniform format that is independent of the vocabularies and behaviors of the plurality of service discovery protocols.

24. The computer-readable medium according to Claim 23, further comprising instructions to perform steps comprising:

providing the service discovery queries to a network host; and

receiving responses from the network host in response to the provided service discovery queries.

X.   EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.